

REMARKS

Reconsideration and withdrawal of the rejections set forth in the Final Office Action dated July 21, 2009, is respectfully requested in view of this amendment. By this amendment, claims 18 and 19 have been cancelled and claim 14 has been amended. Claims 14, 15, 17 and 20–25 are presently pending are pending in this application.

By this amendment, claim 1 has been amended to describe the use of plural first light receiving regions and plural second light receiving regions. The claims also describe "unnecessary light reflected by recording layers other than one recording layer that is a recording or reproducing object", and incorporate descriptions derived from claims 18 and 19. Support is found, *inter alia*, at paragraphs [0081], [0082], [0093]-[0101], [0109], [0135] and [0136] of the specification as published in U.S. Pre-Grant Publication No. 2007/0188835, and in Figs. 6 and 10. It is respectfully submitted that the above amendments introduce no new matter within the meaning of 35 U.S.C. §132.

Applicant requests entry of the Amendment and reconsideration and timely withdrawal of the pending rejections for at least the reasons discussed below.

In the outstanding Office Action, the Examiner rejected claims 14, 15, 17, 18, and 20-23 under 35 U.S.C. §102(b) as allegedly anticipated by U.S. Pre-Grant Publication No. 2001/0053110 to Shibuya (hereinafter *Shibuya*), and claims 19, 24, and 25 were rejected under 35 U.S.C. §103(a) as allegedly unpatentable over *Shibuya* in view of U.S. Patent No. 6,556,533 to Fukakusa et al. (hereinafter *Fukakusa*). The Examiner also objected to an informality in claim 1, which has been corrected by this amendment.

Rejections under 35 USC §102

Claims 14, 15, 17, 18, and 20-23 stand rejected under 35 U.S.C. §102(b) as allegedly anticipated by *Shibuya*. *Shibuya* is cited as disclosing the incident light as one of first or second wavelength and calculation of difference signal between a first light receiving region and a second light receiving region.

Response

This rejection is traversed as follows. For a reference to anticipate an invention, all of the elements of that invention must be present in the reference. The test for anticipation under section 102 is whether each and every element as set forth in the claim is found, either expressly or inherently, in a single prior art reference. *Verdegaal Bros. v. Union Oil Co. of California*, 2 USPQ2d 1051, 1053 (Fed. Cir. 1987); MPEP §2131. The identical invention must be shown in as complete detail as is contained in the claim. *Richardson v. Suzuki Motor Co.*, 9 USPQ2d 1913, 1920 (Fed. Cir. 1989); MPEP §2131.

The claims now describe

"... a plurality of first light receiving regions arranged on the substrate to receive first and second diffracted beams that are diffracted from the first and second sub-beams by the hologram element and a plurality of second light receiving regions arranged on the substrate to receive third and fourth diffracted beams that are diffracted from the third and fourth sub-beams by the hologram element ... wherein the wavelength of an incident beam to the hologram element ... carries out a subtraction operation between the signal of the plurality of first light receiving regions that receives the first and second diffracted beams and unnecessary light reflected by recording layers other than a recording layer that is a recording or reproducing object and the signal of the plurality of second light receiving regions that receive the unnecessary light ... and carries out a subtraction operation between the signal of the plurality of second light receiving regions that receive the third and fourth diffracted beams and unnecessary light reflected by recording layers other than a recording layer that is a recording or reproducing object and the signal of the plurality of first light receiving regions that receive unnecessary light scattering over the substrate ... and outputs the detection signal representative of the second light wavelength, when the one wavelength is the second wavelength."

Accordingly, Applicant has described a differential push-pull (DPP) approach which uses three beams and comprises two light sources having different wavelengths. This configuration, adopts a DPP (differential push-pull) method using three beams and comprises two light sources having different wavelengths. Only one of the two light sources is activated.

The signal of the first light receiving regions includes the sub push-pull signal component of tracking error signal and unnecessary light component. The signal of the second light receiving regions only includes the unnecessary light component when the one light source is of first wavelength. The apparatus carries out a subtraction operation between the signal of the first light receiving regions and the signal of the second light receiving regions. When the one light source is of first wavelength, the apparatus carries out a subtraction operation between the signal of the second light receiving regions that include the push-pull signal component of the tracking error signal and the unnecessary light component.

Thus, the subtraction operation is applied to the signal of the first light receiving regions, which only include the unnecessary light component when the one light source is of the second wavelength. This enables the device to cancel the offset that comes from the signal component of the unnecessary light in a sub-beam of diffracted light that tends to be affected by the unnecessary light. The result is a cancellation of the light reflected by recording layers other than light reflected from a layer corresponding to a recording or reproducing object. Consequently, the claimed subject matter provides an optical device which uses a three beam method and which cancels the offset of the push-pull signal in the tracking error signal, thereby resulting in steady detection of the tracking error signal for a multi-layer disc.

The cited references disclose configurations for a single-beam tracking method in which the configuration comprises two light sources of different wavelengths that are activated concurrently. The two light sources carry out a subtraction between the signal component of a region receiving the light of one wavelength reflected by disc and the signal component of another

region receiving the light of another wavelength reflected by the disc. The subtraction eliminates the DC fluctuation component of a tracking error signal.

The Office Action states that the incident light of reference *Shibuya* is one of first or second wavelength and in that case the calculation of difference signal between a first light receiving region and a second light receiving region is operated as described at *Shibuya's* Paragraph [0049]. It is respectfully pointed out that, as described at Paragraph [0049] and shown at Fig. 4A, the difference signal C - D only includes a tracking error signal component. The difference signal between the light receiving signal C of tracking error signal component of light receiving region 13 and the light receiving signal D of the tracking error signal component of light receiving region 15 is that of the operation within the light receiving regions. The light receiving regions receive the light of first wavelength. The combination of regions 13 and 15 corresponds to the first light receiving regions of Applicant's claimed optical device, and the response of regions 13 and 15 would be to the light of the first wavelength. Therefore, light-receiving signals C and D only include a tracking error signal component. It is therefore submitted that this means that an unnecessary light component would not be included in *Shibuya's* signal processing.

Referring to the left side of *Shibuya's* Fig. 2A, the difference signal c - d between the light receiving signal c of tracking error signal component of light receiving region 14 and the light receiving signal d of tracking error signal component of light receiving region 16 is different from that described in Applicant's claim 14. *Shibuya's* difference signal c - d is that of the operation within the light receiving region that receives the light of second wavelength. The combination of *Shibuya's* regions 14 and 16 would necessarily correspond to a region within Applicant's second light receiving regions. The light receiving signal c or d only includes tracking error signal component, and therefore, the unnecessary light component is not included. In that configuration, the two light sources must be concurrently activated in order to obtain the corresponding ones of Applicant's first and second light receiving regions.

Further, even if one disregards the requirement that both light sources in *Shibuya* must be concurrently activated, each light receiving signal does not include the unnecessary light component whereas DC offset is eliminated from the light receiving signal. *Shibuya* therefore necessarily fails to disclose two light sources have different wavelengths in which one of the light sources is activated whereas the other of the light sources is not. Furthermore, with two simultaneously activated light sources the offset due to the signal components of the unnecessary light reflected from the layer that is not used for recording or playing also cannot be cancelled.

Applicants therefore respectfully submit that the *Shibuya* reference does not teach or suggest all the features as recited in claims 14, 15, 17, 18, and 20-23 of the present application. It is therefore respectfully submitted that the rejection under 35 U.S.C. §102 should be withdrawn.

Applicability of 35 USC §103

It is noted that the features described above in connection with the *Shibuya* reference specifically contradict the present subject matter as claimed. Therefore it would be unobvious to modify *Shibuya* to meet the presently claimed features.

Rejections Under 35 U.S.C. §103

The Examiner rejected claims 19, 24, and 25 under 35 U.S.C. §103(a) as allegedly unpatentable over *Shibuya* in view of *Fukakusa*. These rejections, as applied to the amended claims, are respectfully traversed.

Response

This rejection is traversed as follows. To show obviousness under §103, it is necessary to show an incentive to benefit from the change. *KSR International Co. v. Teleflex Inc. et al.*, 127 S.Ct. 1727, 82 USPQ2d 1385 (2007).

"The proper question to have asked was whether a pedal designer of ordinary skill, facing the wide range of needs created by developments in the field of endeavor, would have seen a benefit to upgrading Asano with a sensor. In automotive design, as in many other fields, the interaction of multiple components means that changing one component often requires the others to be modified as well." (*id* at 127 S.Ct. 1744)

A demonstration of obviousness under §103 requires that the combination represent a design step well within the grasp of a person of ordinary skill in the relevant art. *id.*

"KSR provided convincing evidence that mounting a modular sensor on a fixed pivot point of the Asano pedal was a design step well within the grasp of a person of ordinary skill in the relevant art. (*id* at 127 S.Ct. 1746)

The standard for anticipation under 35 USC 102 and obviousness under 35 USC 103(a) following *KSR* is detailed in *Forest Labs v. Ivax Pharmaceuticals*, 127 S.Ct. 1727, 82 USPQ2d 1385 (2007). In *Forest Labs*, the court determined that a reference mentioned a particular chemical component, but did not explain how to obtain it and therefore deemed that, "A reference that is not enabling is not anticipating." The court then deemed the product was therefore unobvious over that reference.

Shibuya is acknowledged as not describing that the incident beams are sub-beams. *Fukakusa* is cited as showing the use of sub-beams for tracking control in a three-beam system. Instead, the rejection under 35 USC 103(a) alleges that it would have been obvious to modify the control so that unnecessary light of the sub-beams can be removed so that a better tracking signal using the sub-beam method can be obtained.. This stipulation fails to meet the *KSR* test because the use of the sub-beams for cancellation of unnecessary light is not a mere design step (not "a design step well within the grasp of a person of ordinary skill in the relevant art"). In this regard,

Shibuya specifies that the multiple beams operate so that difference signals are between the light receiving signal components and tracking error signal components of light receiving regions. Therefore, *Shibuya* cannot obtain a difference signal so that unnecessary light of the sub-beams can be removed. This is more than a superficial difference; it is a basic function of the *Shibuya* operability.

In this regard, *Fukakusa* discloses an optical device using the DPP method, and which uses a three-beam method. It is submitted, however, that there is no suggestion in *Fukakusa* of a configuration in which unnecessary light is cancelled. Accordingly there can be no suggestion from the combination of the cancellation of unnecessary light.

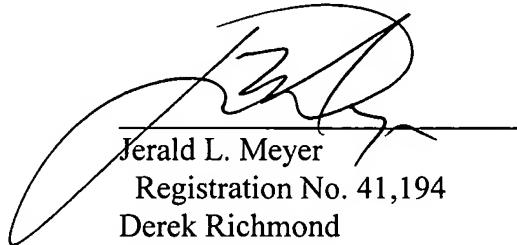
By combining the configurations of references *Shibuya* and *Fukakusa*, the offset signal that comes from the unnecessary light cannot be canceled using only one of the light sources. In that combination, a single light signal cannot be activated from a subsidiary push-pull signal obtained from the diffracted light of the sub-beam. Furthermore, there is no such light signal in either *Shibuya* or *Fukakusa* that would be preferentially affected by the unnecessary light scattering over the substrate.

It is therefore respectively submitted that the rejection under 35 U.S.C. §103(a) should be withdrawn.

CONCLUSION

In light of the foregoing, Applicants submit that the application is in condition for allowance. If the Examiner believes the application is not in condition for allowance, Applicants respectfully request that the Examiner call the undersigned.

Respectfully submitted,
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